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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/111,915	07/08/98	BOGGS	D F-5366

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FENWAL/PATENT LAW

EXAMINER

WARD, R

ART UNIT

PAPER NUMBER

1723

DATE MAILED:

11/07/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

CASE... *F-5366... C.A. 1. US*
DKT. DATE *8-7-01* SEEN BY ATTY.....
FINAL DATE *5-7-01* RESP. SENT.....
SUBJECT... *Office Action (3. mov)*

Office Action Summary

Application No.

09/111,915

Applicant(s)

Boggs et al

Examiner

Richard W. Ward

Group Art Unit

1723



☒ Responsive to communication(s) filed on Sep 14, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1-8, 10, 11, 37, and 40-45 is/are pending in the application

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-8, 10, 11, 37, and 40-45 is/are rejected.

☐ Claim(s) _____ is/are objected to:

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 16

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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DETAILED ACTION

Continued Prosecution Application

1. The request filed on 9/14/00 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/111,915 is acceptable and a CPA has been established. An action on the CPA follows.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1-5, 7-8, 10, 37, 40-41, and 43 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Mahendran et al (US 5,914,039). See especially: figures 2-4 (demonstrates rippled support and skin layer); column 3, lines 47-50 (hydrophilic coating); column 6, lines 18-43 and column 11, line 43 (polyester); column 7, line 35 (5% polymeric material); column 5, lines 45-51 (particle sizes); and column 5, line 62 (thickness). Applicant argues that Mahendran et al [039] does not recite particles which are physically immobilized

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within a polymeric matrix; however, it is maintained by the examiner that particles may be both chemically and physically immobilized within a matrix, i.e., said particles are physically constrained within layer 35 by the matrix itself and by skin layer 36. Figure 4 particularly demonstrates such physical immobilization (bright specks are particles, particles are constrained by an upper skin layer).

4. Claims 1-8, 10-11, 37, 40 and 43-45 are rejected under 35 U.S.C. 102(b) as being anticipated by McAllister et al (US 4,957,957). McAllister et al [957] discloses a composite membrane comprising particulates, a non-fibrous matrix, and a selectively permeable skin (or "sealed") layer (see column 11, lines 45-59), as recited in instant claim 1, and additionally discloses >50% particulates (column 4, lines 30-31) and supports (column 11, lines 3-12), as recited in instant claims 44-45. McAllister et al [957] also discloses: hydrophobic PVDF (column 7, line 5), as recited in instant claims 2-3; a sealed skin surface (column 11, lines 50-54) which contains fewer particles than the interior (i.e., a surface has less volume than the interior), as recited in instant claim 4; specific particle polymer ratios (column 8, lines 35-36 and column 4, lines 30-31), as recited in instant claims 5-6; contoured supports (column 11, lines 3-13), as recited in instant claims 7 and 40; polyethylene wovens and nonwovens (column 7, line 1 and column 11, lines 14-24); a thickness of 500 microns (column 16, line 25), as recited in instant claims 10-11; and hydrophilic coatings (column 11, lines 3-13); as recited in instant claim 43. Applicant argues (pages 5-6) that McAllister et al [957] fails to disclose a "skin" region, i.e., a layer in which particle levels are lower than an interior section; however, since the film of

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McAllister et al [957] is extruded (column 11, line 47), it would reasonably be expected to have a structure similar to that provided by the extrusion process shown within figures 10 of the instant application, as extrusion processes involve an extrusion passageway analogous to passageway 41 within figure 9, creating shear forces analogous to those discussed on page 16, lines 24-36 of the instant disclosure. Evidence of this assertion is provided by Mahendran et al [039], which clearly demonstrates (see figure 4) that extrusion processes (e.g., as expanded within example 2) result in redistribution of particulates within a polymer film.

5. Claims 1-8, 10-11, 37, 40-41, and 44-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugiyama et al (US 4,728,432). Sugiyama et al [432] discloses a composite membrane comprising particulates, a non-fibrous matrix, and a skin layer (see column 3, lines 29-56; "skin" or surfaces are formed when "prepared by a known method of producing porous membranes...[such as] flowcasting, dipping, coating..."), as recited in instant claim 1, and additionally discloses 70% particulates (column 3, lines 51-56) and supports (column 3, lines 21-28), as recited in instant claims 44-45. The formation of a "skin" layer is deemed to be inherent, as activated carbon (or other "sorbents") would be wetted by polymer solutions, thus surrounding said particles with polymer; at the outer edge of the membrane, the thus wetted sorbents would form an outer "skin" layer of polymer separating the particulates from the outside of the membrane. Furthermore, many of the coating methods within genres suggested by Sugiyama et al [432] involve shear forces (e.g., extrusion, knife coating, continuous web dip coating), also providing for the formation of a "skin" region. Sugiyama et al [432] also discloses

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hydrophobic polyurethane (column 3, line 47), as recited in instant claims 2-3; more particles in an interior than in a "skin" surface (see above), as recited in instant claim 4; 70 % particulate and 30 % polymer (column 3, line 53), as recited in instant claims 5-6; rippled polyester mesh supports (column 3, lines 14-28), as recited in instant claims 7-8 and 40-41; a 400 micron thickness (column 3, line 59), as recited in instant claims 10-11; and 10 micron particles (see claim 3), as recited in instant claim 37. Applicant argues that Sugiyama et al [432] fails to disclose a "skin" region (pages 7-8); however, said skin region is deemed to be inherent (see above).

6. Claims 1-6, 40-42, and 44 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Andersen et al (US 5,660,903). See column 7, line 10 to column 8, line 37 -- especially column 7, lines 43-47 (texturing or pleating). The formation of a "skin" is deemed to be inherent owing to the use of extrusion processes (see figure 2). Applicant argues that Andersen et al [903] fails to disclose a "skin" region (pages 8-9); however, said skin region is deemed to be inherent (see above).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama et al [432] or McAllister et al [943]. Sugiyama et al [432] and McAllister et al [943] disclose all aspects of instant claim 42 except for a pleated support; however, in the absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the same time the invention was made to utilize a pleated support in place of the generic supports of Sugiyama et al [432] or McAllister et al [943] for the purpose of achieving a desired degree of filtration for a particular separation application. Pleated supports are well-known in the membrane art -- e.g., Markley (US 3,746,175) -- and clearly fit into the genus of supports of McAllister et al (column 11, lines 14-24 -- pleating is good for achieving high thickness and is suggested by "spot welding") and Sugiyama et al (column 2, lines 49-54 -- pleated supports have "ruggedness").

Response to Arguments

9. Applicant's arguments filed 8/21/00 have been fully considered but they are not persuasive. Applicant's clarification of the term "skin" is acknowledged, and the rejections have been restructured above in response to arguments regarding said clarification.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard W. Ward whose telephone number is (703)305-0536. The examiner can normally be reached on Monday-Friday from 7:00 AM to 3:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Walker, can be reached on (703)308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703)305-3602.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose phone number is (703)308-0661.



R.W.W.

November 2, 2000



W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700